

Serial No. 09/740,288
Stephen M. Allen et al.
PLANT BIOTIN SYNTHASE
Filed: 12/19/00

Soybean (SID 28), and Wheat (SID 32) Alignment of Biotin Synthase Proteins from Barley (SID18), Corn (SID 20-24), Prickly Poppy (SID 26),

	EIQAIYDSPLLDLLFHGAQVHRNVHKFREVQQCTLLSIKT <i>GGCSEDCSYCPQ</i> SSRYSTGLKAEKLMKKDAVLEAAKKAKEAGSTRFCMGA EIQAVYDSPLLDLLFHGAQVHRNVHKFREVQQCTLLSIKT <i>GGCSEDCSYCPQ</i> SSRYNTGLKAQKLMNKYAVLEAAKKAKESGSTRFCMGA	SID18 SID20 SID22
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	YALSL	6321725
	MFTRTIRQQIRRSSALSLV	2995363
	SSVRLQVQKSRNYGTVSSVPPQA	SID30
	GLQSASCYSSLSAASAEAERTIREGPRNDWSRD	1705463
		SID32
	TKPNPKHKYRCCLLSLSCLYSQISHSFSVVSLPNFEFESKNMFLARPIFRAPSLWALHSSYAYSSASAAAIQAERAIKEGPRNDWSRD	SID28
	TFSSLSSSSSAAAVQAERTIKEGPRNDWSRD	SID26
	MAAAAFSSAAAEAERAIRDGPRNDWSRP	SID24
	MAAAAFSSAAAEAERAIRDGPRNDWSRP	SID22
	MAAAAFSSAAAEAERAIRDGPRNDWSRP	SID20
	TTTPSAVSPSAAAAPFRPALLAEPAMMLLLARSLRSRVRSPFASAVSAAPFSSVSAAAAEAERAVRDGPRNDWTRP	SID18

2995363 SID30 SID32 SID28 SID26 SID24 6321725 1705463 27777 EIQAVYDSPLLDLLFHGAQVHRNVHKFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSRYNTGLKAQKLMNKYAVLEAAKKAKESGSTRFCMGA EIQAVIDSELLDLLFHGAQVHRNVHKFREVQQCTLLSIKI<u>GGCSEDCSYCPQ</u>SSRYNTGLKAQKLMNKDAVLEAAKKAKESGSTRFCMGA QLKEIYHTPLLELTHAAQLQHRKWHDPTKVQLCTLMNIKSGGCSEDCKYCAQSSRNDTGLKAEKMVKVDEVIKEAEEAKRNGSTRFCLGA EIKAIYDKPLMELCWGAGSLHRKFHIPGAIQMCTLLNIKT*GGCSEDCSYCAQ*SSRYQTGLKASKMVSVESVLAAARIAKDNGSTRFCMGA EIKSVYDSPLLDLLFHGAQVHRHVHNFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSRYSTGVKAQRLMSKDAVIDAAKKAKEAGSTRFCMGA QVKSIYDSPILDLLFHGAQVHRHAHNFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSKYDTGVKGQRLMNKEAVLQAAKKAKEAGSTRFCMGA EIKSVYDSPVLDLLFHAAQVHRHAHNFREVQQCTLLSVKT*GGCSEDCSYCPQ*SSRYDTGVKAQKLMNKDAVLQAAEKAKEAGSTRFCMGA EIQKIYDTPLIDLIFRAASIHRKFHDPKKVQQCTLLSIKT*GGCTEDCKYCAQ*SSRYNTGVKATKLMKIDEVLEKAKIAKAKGSTRFCMGS -----RDAVLEAAKKAKEAGSTRFCMGA

FIG. 1A



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AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC AWRETIGRKTNFNQILEYVKDIRGMGMEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSREYYPNIISTRSYDDRLQTLQHVREAGISVC AWRDMKGRKSAMKRIQEMVTKVNDMGLETCVTLGMVDQDQAKQLKDAGLTAYNHNIDTSREHYSKVITTRTYDDRLQTIKNVQESGIKAC AWRDLNGRNRTFKNILEIIKEVRSMDMEVCVTLGMLNEQQAKELKDAGLTAYNHNLDTSREYYSKIISTRTYDERLNTIDNLRKAGLKVC AWRDMRGRKTNLKNVKTMVSEIRGMGMEVCVTLGMIDAEQAQELKEAGLTAYNHNVDTSRDFYPKVITTRTYDERLDTIKNVREAGINVC AWRDTIGRKTNFSQILEYIKEIRGMGMEVCCTLGMIEKQQALELKKAGLTAYNHNĮDTSREYYPNVITTRSYDDRLETLSHVRDAGINVC AWRETIGRKTNFNQILEYVKDIRGMGMEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSREYYPNIISTRSYDDRLQTLQHVREAGISVC ${\tt AWRDTLGRKTNFNQILEYVKDIRDMGMEVCCTLGMLEKQQAVELKKAGLTAYNHNLDTSREYYPNIITTRTYDERLQTLEFVRDAGINVC$ AWRDTVGRKTNFKQILEYVKEIRGMGMEVCCTLGMIEKQQAVELKQAGLTAYNHNLDTSREYYPNIITTRSYDERLETLQFVREAGINVC AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC

SID26

SID32

SID30 2995363 1705463

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SID22 SID24 SID20

SID18

SGGILGLGEKKHDRVGLIHSLATMPTHPESVPFNLLVPIPGTPVGDAVKER----LPIHPFLRSIATARICMPKTIIRFAAGRNTCSESE SGGIIGLGEAEEDRIGLLHTLATLPSHPESVPINALLAVKGTPLED--QKP----VEIWEMIRMIGTARIVMPKAMVRLSAGRVRFSMSE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALIAVKGTPLQD--QKP--SGGIIGLGEAEEDRVGLLHTLSTLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARIVMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPSHPESVPINALLAVKGTPLED--QKP---SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED---QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALIAVKGTPLQD--QKP----VEIWEMIRMIASARIVMPKAMVRLSAGRVRFSMPE TGGILGLGESEDDHIGFIYTLSNMSPHPESLPINRLVAIKGTPMAEELADPKSKKLQFDEILRTIATARIVMPKAIIRLAAGRYTMKETE TGGILGLGENKSDHIGLLETVATLPSHPESFPVNMLVAIKGTPLEG--NKK----VEFENMLRMVATARIVMPKTIVRLAAGRGELSEEQ -VEIWEMIRMIATARIVMPKAMVRLSAGRVRFSMSE -VEIWEMIRMIASARIVMPKAMVRLSAGRVRFSMPE 2/3

SID18
SID20
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QFVCFMAGCNSIFTGKKMLTTMCNGWDEDKAMLAKWGLQPMEAFKYD	6321725
QALAFMAGANAVFTGEKMLTTPAVSWDSDSQLFYNWGLEGMQSFEYGTSTEGEDGTFTLPPKERLAPSPSL	2995363
QVLCFMAGANAVFTGETMLTTPAVGWGVDSVVFNRWGLRPMESFEVEALKNDKPATTNTE I PVEASKAEMPGTVA	SID30
QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKTLGLIPKPPSFSEDDSESENCEKVASASH	1705463
QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAPNFGDEEVMVAAPTERCEQAALM	SID32
QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKVLGLLPKAPSLHEGETSVTEDYKEAASSS	SID28
QALCFLAGANSIFTGEKLLTTPNNDFDADQMMFKILGLTPKAPNFDQTSTSFEAERCEQEATAS-	SID26
QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAPSFGEEEASAAAPTESERSEQAASM	SID24
QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAPSFGEEEVSAAAPAESERSEQAASM	SID22
QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAPSFGEEEASAAAPTESERSEQAASM	SID20
QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAPNFGDEEATVASSTERCEQAASM	SID18

FIG. 1C

Clone cdt2c.pk002.c17 Contains a 99 Nucleotide Deletion

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SID19 ATACAACACTGGATTGAAGGCCCAAAAATTGATGAACAAATATGCTGTCTTGGAAGCAGC SID21 ATACAACACTGGATTGAAGGCCCAAAAATTGATGAACAAAGATGCTGTCTTGGAAGCAGC	SID19 SID21
SID19TCATCAAG SID21 TCTTTCAATCAAGACTGGTGGATGCAGTGAAGATTGTTCTTACTGTCCTCAGTCATCAAG	SID19 SID21 TC
SID19 TCACGGGGCTCAGSID19 TCACGGGGCTCAGACACACACACT	SID19 SID21
SID19 CGACTGGAGCCGGGCCCGAGATCCAGGCCGTCTACGACTCACCGCTCCTCGACCTCCTCTT SID21 CGACTGGAGCCGGCCCGAGATCCAGGCCGTCTACGACTCACCGCTCCTCGACCTCCTCTT	SID19 SID21